PRINCIPLES AND PRACTICE OF NEUROPATHOLOGY. 2nd edition
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With the rapid growth in our understanding of the molecular and pathological basis of neurological disorders, it has become increasingly difficult to include all aspects of neuropathology in one book. With the exception of a few books, such as Greenfield’s Neuropathology, most new neuropathology texts are restricted to specific areas of the speciality. This relatively slim volume aims to present readers with a concise and up-to-date overview of neuropathology, filling a particular niche in the market. It has been extensively rewritten by a number of eminent North American neuropathologists to include recent genetic and imaging data and with the addition of several chapters that were not included in the first edition, which was published 10 years ago.

There is an introductory chapter outlining the basic procedures used in neuropathology and common pathological reactions, such as cerebral oedema, brain herniation and hydrocephalus, together with the cellular responses of neurons and glia to injury. Although the text is clear, some of the microscopic images are of poor quality, and attempting to show eosinophilic change in black and white seems rather pointless. This is followed by an extremely short (2½ pages) and not particularly useful chapter covering some of the basics of CT and MRI imaging.

Paediatric neuropathology is largely covered in a chapter on developmental and perinatal disorders, which starts with a brief review of CNS development, followed by descriptions of the main disorders. Infectious diseases are separated into three chapters. The first is well illustrated and deals with bacterial, fungal and parasitic disorders, and is the only section of the book to include significant numbers of CT and MRI images. It includes only a brief paragraph describing neurosarcoïdosis. In the next chapter it was disappointing to see prion diseases grouped with viruses, reinforcing obsolete ideas that prion disorders are slow-virus infections. This section is particularly poor, with little or no mention of the subtypes of sporadic CJD and the role of PrP polymorphisms, and only a few lines devoted to variant CJD. HIV infection and its complications are discussed in a separate chapter, which includes a table illustrating how the neuropathology patterns have changed over time with the advent of more effective treatment.

There is a chapter on ischaemic damage to the brain and spinal cord, describing the different types of infarction and patterns of ischaemia. Some of this is duplicated in the following chapter on cerebrovascular disease and again in the chapter on non-neoplastic disorders of the spinal cord. The chapter on cerebrovascular disease also covers cerebral haemorrhage, hypertensive vascular disease, subarachnoid haemorrhage, amyloid angiopathy, vascular malformations and vasculitides. There is only a brief description of venous infarction.

The chapter on head injury is reasonably comprehensive and is illustrated with numerous macroscopic images. Key aspects of the neuropathology of blunt trauma and penetrating injuries are described in a practical way that pathologists will find particularly helpful. A separate section at the end of this chapter covers important features of head injury in infants and
young children, including discussion of the controversies relating to the diagnosis of non-accidental injury.

The chapter on intoxications and metabolic diseases describes the effects of the major neurotoxins (including the various affects of alcohol and chemotherapeutic agents on the brain), vitamin deficiencies, inherited metabolic disorders and leucodystrophies. Rather strangely, this chapter also has a section on hypoxic brain damage (which is also covered in other chapters), and I could not find any mention of either uraemic or hepatic encephalopathy.

Neurodegenerative diseases are covered in two chapters, one of which is entirely devoted to Alzheimer’s disease. Several different classification systems for these disorders are provided, including neuroanatomical, genetic and protein-based approaches. The descriptions of the pathology are clear and include up-to-date information about relevant genetic findings, such as the role of apolipoprotein E polymorphisms in Alzheimer’s disease.

The chapter on myelin diseases is particularly well written and includes some crisp macroscopic images. It is largely devoted to multiple sclerosis, describing recent ideas on how the different pathological patterns encountered may be classified and discussing the role of axonal changes and cytokine expression in the disease pathogenesis. Other disorders, including ADEM (acute disseminated encephalomyelitis), PML (progressive multifocal leucoencephalopathy), central pontine myelinolysis and leucodystrophies, are also covered well.

The neuropathology of tumours is covered in five chapters. There is an introductory chapter discussing general features of tumours of the nervous system, including their incidence and the effects of therapy on the brain, followed by a chapter on laboratory techniques which describes the role of immunocytochemical markers, various measures for assessing cellular proliferation and (briefly) some of the genetic abnormalities underlying tumour formation. The more detailed description of brain tumours broadly follows the WHO classification and includes some of the recently described entities, such as chordoid glioma of the third ventricle and atypical teratoid/rhabdoid tumours. Embryonic tumours are given a separate chapter, with a rather lengthy account of the historical background and controversies in classification in this group of tumours; the author makes clear her objection to the WHO classification. There are separate chapters on pituitary and peripheral nerve tumours and a further chapter giving brief descriptions of the commoner inherited tumour syndromes affecting the nervous system.

There is a relatively detailed chapter on non-neoplastic disorders of the spinal cord providing information about the patterns of ischaemic damage, which is not found in many larger texts. Useful descriptions of the cord pathology in degenerative and inflammatory disorders are also provided. The final chapters, on peripheral neuropathies and muscle disease, are concise and well written.

Apart from a series of colour plates in the centre of the book, the images are in black and white and are uniformly small. They are of highly variable quality and I found several hard to interpret. Some would have benefited from being of larger size and others require the addition of arrows to indicate the feature being illustrated. The book would also have benefited from more careful editing to reduce the amount of duplication, which is surprisingly frequent for such a slim volume. In most chapters the references are reasonably up to date, although in some there is excessive reference to other books rather than primary sources.

The market in neuropathological texts has recently become highly competitive, with a number of excellent more specialized books brimming with colour illustrations and diagrams, and it is difficult to envisage that neuropathologists will find this a useful addition to their shelves. However, despite its faults, this book has largely succeeded in its aim of being a concise overview of neuropathology, and it represents good value for money. General histopathologists and clinicians in the neurosciences who want a single volume to cover all aspects of neuropathology should certainly give it serious consideration.

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